

09/576648

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each additional user, such as user 128 who is assigned codes 2 and 4.

The various CDMA codes for co-located users
5 can be synchronous or asynchronous. A synchronous
orthogonal code gives an advantage of about 15 dB or
better over asynchronous CDMA codes. For multiple
platforms, it is hard to synchronize CDMA codes among
users. Thus, for the disclosed multi-platform
10 system, asynchronous CDMA communication is assumed.
Although multiple transponder nodes increase the
system availability and total power resource, it
under-utilizes the system's full potential, because
there are only a finite number of codes available due
15 to the finite bandwidth available to a system. Thus,
the total bandwidth limits the number of users the
system can serve and the system is unable to fully
utilize the power and capacity it was designed to
handle.

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In the preferred embodiment, the system 100
is an asynchronous CDMA system that utilizes imbedded
time delays as described in co-pending patent
application Serial No. 09/530505, filed
25 Apr. 18, 2000 and entitled "Coherent Synchronization
of Code Division Multiple Access Signals," which is
hereby incorporated by reference. In accordance with
the preferred system, the signals 112, 114 from each
transponder 102, 104 will arrive completely in-phase
30 because appropriate time delays are pre-determined

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